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ABSTRACT

This study examined the effects of computer-mediated communication (CMC) in creating a new environment for the development of a deaf community through a case study of DEAF-L, an on-line discussion venue focusing on issues and concerns relating to deaf people. Data collection took the form of participant observation and analysis of transcripts of listserv communication over a 20-day period. A total of 851 messages (1,600 pages of text) were examined to determine the extent to which this electronic environment facilitated the discussion of deafness. Analysis was both quantitative (numbers per day, length, and numbers per topic), and qualitative (message relationship to the deaf community, information sharing, discussing versus "flaming," and various roles of participants). Among the many topics discussed on DEAF-L during this period were deaf culture, deaf humor, definitions, employment, health, hearing aids, relationship to the hearing, interpreters, legislation, lifestyles, oralism, religion, sign language, software, and using voice. The study found that CMC, and specifically DEAF-L, does provide an environment in which information can be exchanged and ideas debated while facilitating the development of a new kind of deaf community predicated on interest in deafness rather than language modalities. (DB)

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Building Deaf Community in Cyberspace: A Case Study of a Deaf Listserv

a paper for the American Educational Research Association

March 1997

by

Chris Stephenson

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ABSTRACT

For deaf people, access to computer-mediated communications (CMC) provides not only a venue where information and ideas can be shared with a broader audience than might otherwise be possible, but also a new environment in which community can be created and experienced.

This paper is drawn from the results of a case study of DEAF-L, an on-line discussion venue focusing on issues and concerns relating to deaf people. Data collection took the form of participant observation and analysis of the transcripts of listserve communication over a twenty-day period. A total of 851 messages (1600 pages of text) were examined to determine the extent to which this electronic environment facilitated the discussion of deafness.

This study indicates that CMC provides an environment in which information can be exchanged and ideas debated on a wide range of issues of importance to deaf people, professionals serving the deaf community, and parents of deaf children. Through its reliance on textual communication, CMC also facilitates the development of a new kind of deaf community predicated on interest in deafness rather than language modalities (other than written English).

INTRODUCTION

Computer-mediated communication (CMC) provides a unique way for deaf and hearing people to interact in an information medium in which face-to-face communication is irrelevant. For deaf people, it promises a venue where information and ideas can be shared with a broader audience than might otherwise be possible. E-discourse, because it is still an essentially anarchic medium with few controls, provides a forum for broad-ranging discussion that cannot be found in any other public medium (Perkins & Newman, 1995). It also provides a new environment in which community can be created and experienced.

Over the last five years there has been a proliferation of electronic discussion groups which provide people with a resource for information gathering and sharing, as well as social interaction. Cyberspace, as a concept and a cultural artifact, is both powerful and potentially pervasive. And, as Postman (1988) notes, like most new technology, it in turn fosters radical social change and inevitably has its way with a culture:

> "Each medium, like language itself, classifies the world for us, sequences it, frames it, enlarges it, reduces it, argues a case for what the world is like...Each new medium of communication recreates or modifies culture in *its* image; and it

> is extreme naiveté to believe that a medium of communication or, indeed, any technology is merely a tool, a way of doing." (pg. 33)

This paper investigates how interactions in cyberspace affect discussion of deaf issues and shape the way participants perceive of each other and the medium.

The Deaf Community and Computer-Mediated Communication

Analysis of an environment dedicated to discussion of issues in deafness requires some understanding of the complex questions and concerns engendered by the ways in which deafness can be defined and experienced. The physiological phenomenon of deafness is subject to sociocultural constructions that are fluid and diverse. These include medical, audiological, linguistic, perceptual, and cultural orientations. Each construction can be best understood as an aspect of a larger model which informs our perception of deafness, and thus shapes our conception of deaf experience and deaf community. Closer examination of these models reveals that there are fundamental differences between them. These differences are likely to create a diversity of opinions on key issues and can therefore be expected to generate lively (and possibly even heated) discussion within an environment in which deaf people, educators, researchers, and service and health care providers interact. Understanding the unique ways in which CMC can be used to facilitate discussion of issues in deafness, therefore, requires some engagement with the central question of what it means to be deaf. As Stokoe (1993) notes, this requires us to:

> "see deaf people as individuals and as members of a social group, in order to see their language and their associations that language cements, their customs it preserves and all the rest". (pg. 51)

One of the most common views of deafness is that it is a disability, defined by the World Health Organization (1980) as: "Any restriction or lack (resulting from impairment) of ability to perform activity in the manner or within the range considered normal for the human being" (pg. 4). As Strauss (1966) points out though, disability itself is a human construct, and a broad spectrum of social and cultural attitudes define a given society's response to these classifications. The construction of deafness as disability is part of the larger historical tendency to perceive deafness from a medical and hence rehabilitative standpoint. This standpoint arises from a deficit model of deafness predicated on the idea that deafness is a pathological state in need of

treatment, and that deaf people are handicapped by their defective hearing and language functions.

Carver (1990), however, notes that the pathological model of deafness underestimates the visual channel as a route for spatial and temporal linguistic information processing, and as a larger pathway for cognition and enculturation. He argues that our construction of deafness should be based instead on a difference model which focuses on using all of a deaf person's physical and sensory abilities to achieve the highest possible level of educational development and literary functioning. Musselman (1994) also proposes that deafness should be viewed, not in terms of disability or deficit, but rather in terms of belonging to a cultural and linguistic minority which centers in a primarily visual-based relationship with the external world. According to Musselman, deafness implies a different sensory orientation to the social and physical matrix within which communication occurs. A visual-based model of deafness, through its recognition of deaf culture, provides a possible bridge between the deficit and cultural models. It also leaves room for the cultural construction supported by many within the deaf community.

A cultural model of deafness begins with the assumption that deafness is a *normal state*. As Solomon (1994) points out, for many people being *Deaf* is a source of active pride, as opposed to being *deaf*, or one defined primarily by a pathology. To be culturally *Deaf*, Padden and Humphries (1988) argue, requires more than a visual-based orientation to the world. It requires use of American Sign Language (ASL) as a primary means of communication, and a set of beliefs about connection to the larger society. Deaf community, they contend, like many other cultures in the traditional sense of the term, is historically created and actively transmitted across generations. Kisor (1990) notes, however, that this model of a language-based culture, with its rejection deaf people who choose to communicate through speech, can be exclusionary and fraught with conflict. In this instance then, it might be useful to distinguish between the view of deaf *culture* as language based, and deaf *community* which centers on a self-constructed identification. This view of deaf community is also particularly useful for investigations of community building in CMC where differences in language modality are mitigated by the purely textual environment.

While its use for community building is a fairly recent phenomenon, telecommunications (for example tty) has always been important for deaf people in that

it has served as an important source of new forms of communication with each other and with the world at large. Cerf (1978) lists the most obvious advantages as asynchronous message conveyance, fast delivery, and the provision of access to an informal communications channel. Telecommunications technologies allow deaf people access to information from any geographical point without long distance telephone charges. Access to on-line conversation groups can also reduce isolation by facilitating discussion with other deaf and hearing adults.

Support for use of CMC by deaf people has been especially strong in the educational arena. Access to computer technology in general is seen an a important aspect of improving the employability of deaf students (Storm, 1982). Educators have also expressed considerable faith in the ability of computer technology to address the serious reading and writing problems deaf children and young adults experience (Bruce and Peyton, 1994). Stepp (1992) also notes the importance of infusing the lives of young deaf people with the new communications technologies in order to ensure that deaf people have the means to make themselves understood and to share their ideas and skills with the world. Empowerment is also a central issue in computer use by the deaf community. Male (1988) sees computer technology as a means to overcoming powerlessness and dependence. Krogh (1993) and Tighe (1996) in their studies on differently-abled populations in general, note that on-line social environments can be used to meet psycho-social needs such as providing and receiving emotional support. They also may reduce discrimination experienced due to perceived difference by giving the user the choice of whether or not to disclose information about a disability.

DEAF-L as a Research Venue

While CMC takes many forms and is referred to by many names, at its core is the development and use of computer-facilitated conferencing or discussion venues. This study focuses on a *listserve* (often simply referred to as a *list*) called DEAF-L. List systems were developed as methods for automatically collecting and redistributing electronic messages among a large group of subscribers or participants, usually based on a shared interest (Paxton, 1994). Listserves (like computer conferences) can therefore be considered a shareable writing-based communication space where many members of a large group can read and/or write simultaneously. Unlike computer conferences, however, listserves do not subdivide discussion into specific topic areas. For this reason listserves are typified by the simultaneous presence of multiple streams of discussion (Murray, 1995).

DEAF-L is an electronic forum for the discussion of questions, topics, and concerns related to deafness and thus provides a particularly rich venue for research. It is a dynamic medium constantly shaped and reshaped by those engaging in it, and while it is expected that the discussion will remain focused on issues of deafness, content is ultimately determined by the interests and concerns of the list's participants.

METHODOLOGY

This study focused on the experience of the participants in DEAF-L within the context of the listserve. Data collection took the form of participant observation and analysis of the collected transcripts of listserve communication over a 20-day period (851 messages totaling 1600 pages of text). A case study approach was deemed most appropriate because it accommodates a range of research paradigms, disciplines, and philosophical perspectives and by permitting a certain amount of latitude in the selection of data to be considered, allows the researcher to provide a more comprehensive analysis of the phenomena being studied (Mason, 1988). This study relied particularly on the definition of case study provided by Yin (1989) which describes it as an empirical inquiry that: "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used". (pg. 23)

Subjects

The subjects in the study were determined essentially by self-selection, that is, anyone who chose to participate in the listserve discussions during data collection were included. Although the number is difficult to determine due to constant additions and deletions, DEAF-L's Moderator estimates that the average number of subscribers remains fairly constant at approximately 550 people. It is important to note, however, that only some of these subscribers post messages, while many merely read (*lurk*). What we can know of the sample then, is limited by the choice of many to remain anonymous. Because subscription to the listserve also requires access to technology (computer hardware and software, and electronic mail accounts) and expertise (knowing how to subscribe, to read, and to post to a listserve), we must assume that issues of accessibility also limited the possible participants and thus the potential for generalization to other groups and populations. The medium itself also heightens the complexity of describing the sample because biographical information is limited.

Listserve participants usually come to know each other through personal information gleaned from a variety of postings. Sometimes new members provide a biographical message, but generally one comes to know people as one might in other social settings, a little at a time. This sample, therefore can only be seen to be representative of those members of the deaf community who have access to the appropriate technology and who have acquired the skills to use that technology to communicate comfortably in written English in this new medium. What can be generalized from it, however, is some indication of the potential for deaf people to create and participate in this new form of on-line community.

Procedure

Transcripts of all listserve discussions were captured and logged. Complete texts as well as descriptive markers were stored in a FilePro database. The descriptive markers included: message number, sender's identification number, gender (male, female, unknown), date, message status (new message, response, other), topic, and word count. As the data collection progressed, additional fields were created to allow tracking of instances where posters could be identified by a particular writing style or identifying content such as emoticons, personal names or pronouns, and visuals. Instances where posters provided additional biographical information within a message were also recorded. The database was structured to allow for two views of the data, one to include only the markers, and the other to include full text. A number of steps were taken to ensure adherence to the principals of ethical use and to protect the privacy of participants.

RESULTS

One of the primary goals of the researcher examining any community should be to provide a rendering sufficiently evocative of its richness, diversity, and complexity. This study therefore combined qualitative and quantitative methodologies to examine different aspects of the DEAF-L data. This report focuses on the qualitative analysis because it offers a more text-based and text-rich view of the data, thus providing insight into the social aspects of the listserve, as embodied in how listserve members spoke to and about each other, and about their relationships to each other and the listserve. The following quantitative results are provided, however, to assist in describing the environment in which the communication and community building took place.

Message Volume and Message Type

One of the most striking aspects of DEAF-L, like many listserves, is the amount of information participants must process in order to follow the multiple discussion threads which make up its whole. Although some have described a listserve as akin to a town hall meeting where everyone is invited to take part in the discussion, in actuality the experience of DEAF-L is more like a very noisy party where everyone is talking at the same time about different things. Multiple threads of discussion on diverse topics flow across the screen, competing for the reader's attention. Some discussion threads barely receive notice and disappear quickly, while others generate voluminous and sometimes acrimonious debate that goes on for days.

Over the data collection period a mean of 42.5 messages per day were posted to DEAF-L, with the highest volume occurring on Day 17 (75 messages) and the lowest volume occurring on Day 1 with a (28 messages). Another measure of the sheer volume of DEAF-L can be found in the amount of text that a given reader would have to process to fully follow all of the message threads. DEAF-L generated 170,098 words of text, with the briefest messages containing 0 words and the longest message having 1694 words. The mean number of words per message was 199.8, while the median number of words per post was 143. The difference between these two numbers indicates the influence of several exceedingly long posts which resulted in the higher mean. ***Figure 1*** shows the number of postings per day for the data collection period.

Postings By Topic

A great many issues of particular concern to deaf people and hence to anyone interested in deafness were discussed, some at considerable length. The location of various kinds of resources was one of the most frequently-discussed topics on DEAF-L (90 messages or 10.58% of the total number of posts). Resources for deaf people, sign language, language in general, oralism, deaf humor, deaf culture, interpreters, captioning, education, and religion were also frequently-discussed topics, each accounting for more than 3% of the total number of posts.

The fact that the listserve itself generated more messages than any other topic was a less anticipated result. During the data collection period the DEAF-L Moderator was forced to suspend posting privileges for a participant as a result of persistent violation of the listserve's rules of decorum, generating considerable discussion about DEAF-L operations and listserve rules in general. Although the large number of messages on

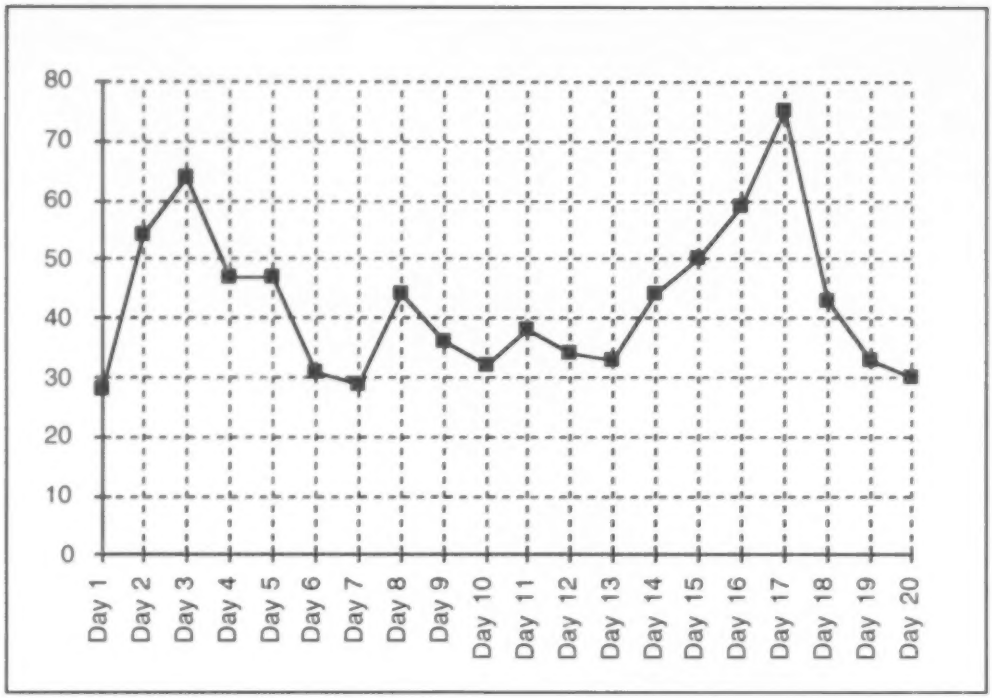


Figure 1: Number of Postings by Day

this topic results in a somewhat skewed picture of the listserve's normal discussion pattern, it also provided a great deal of unexpected data on how the participants view their experiences on DEAF-L, and their relationships to other members of this e-community. ***Figure 2*** details the number and percent of posts by topic for those topics which accounted for at least one percent of the total posts. (These results reflect groupings based on the primary topic of each message.)

In order to provide some indication of the sheer volume and complexity of communication on the DEAF-L listserve, the data was examined to determine the total number of posts for each data collection day by topic. **Figure 3** provides a visual representation of this data, which illustrates the complex combination of topics and number of messages as they are experienced by listserve participants on a daily basis.

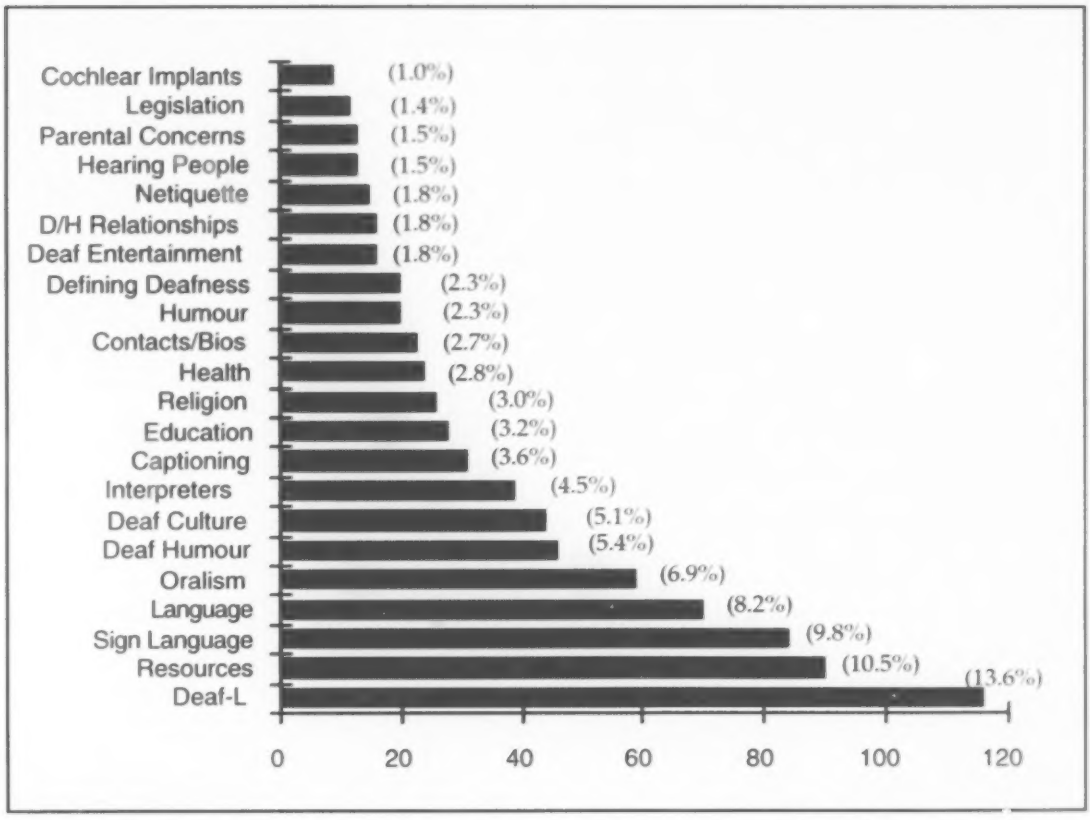
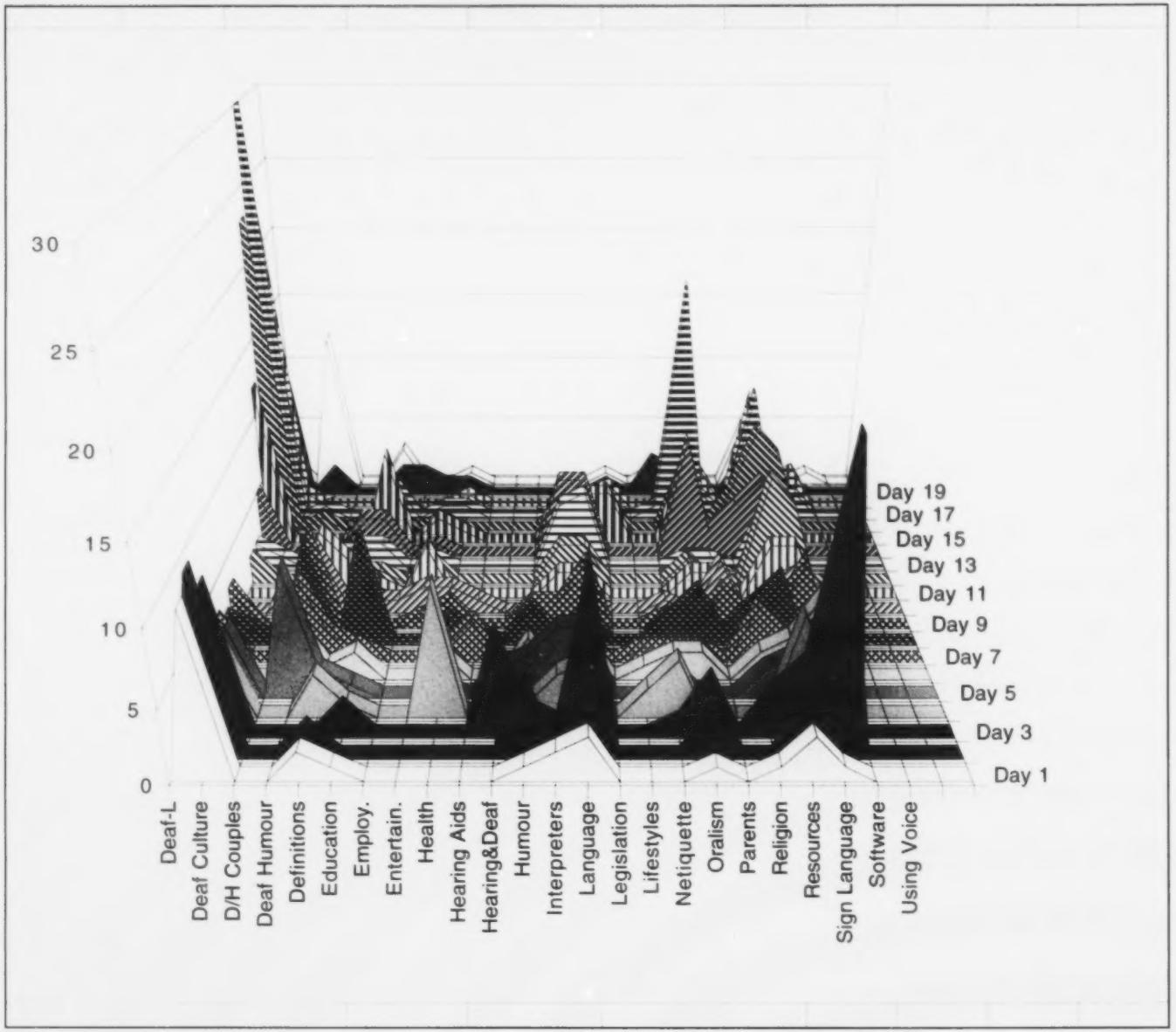


Figure 2: Number and Percent of Posts by Topic (1% or More of Total Posts)

Deafness and Community

While the quantitative data provides the clearest understanding of the context in which communication takes place, the qualitative data provides the most assessable view of the communication itself and the relationships which underlie it. Because deafness is a complex subject area where differing models give rise to serious philosophical differences, DEAF-L is guaranteed to be a venue in which opinions will clash. The challenge of establishing cohesion among participants is further exacerbated by the fact that DEAF-L represents an attempt to provide an arena in which people with differing experiences (deaf and hearing) and differing perspectives (deaf people as service users, parents of deaf children, and professionals working with deaf people) can meet to discuss these complex issues.

Figure 3: Messages By Subject and Day



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DEAF-L is not unique in its focus on a particular topic or related set of issues (in this case deafness), nor is it unique in the extent to which it facilitates communication among people who are geographically separated. What makes it special, however, is the way in which its deaf and hearing members use the seeming limitations of computer-mediated communication (CMC) to create a venue which minimizes differences in hearing status and communication modality, and thus maximizes the possibilities for creating community. Analysis of the DEAF-L data reveals that whether or not listserve members hear and sign is less relevant to others than what they appear to believe. Occasionally, people do provide information about their hearing status, for example:

> "I was born profoundly deaf...and am culturally Deaf" (229/21)

They also identify others as deaf or hearing. More often, however, people are identified on the basis of their views on key issues.

> "Paul Smith was an oralist. Stevie was an oralist. West is an oralist." (229/21)

This idea that membership in this community is predicated on what one *thinks* about deafness, rather than whether or not one *is* deaf, permeates the DEAF-L data.

Although DEAF-L is designed as a forum for discussion of issues related to deafness, it is also a forum where people share thoughts and life experiences. In some cases, these details may be shared as a means of illustrating an idea or validating a point of view. In many cases, however, it appears that DEAF-L members speak about their lives because they see themselves as part of a larger community of people who are interested in who and how they are. This kind of information is often provided in message closures or .sig lines (files containing personal information and sometimes visuals that are appended to a poster's messages).

> "Greg, who starts his second ASL class this month" (85/38)
>
> "Now I'm having a cold." (177/11)
>
> "(taking a note to go visit my mum this week-end... =)))))" (137/11)

People post this information because they believe others are interested in them, and examples drawn from the data reveal that these expectations are grounded in reality. In this venue people pay attention to each other, offering support, solace and praise.

> "Brad, so sorry that you missed the hearing requirements on your recent test to become an officer. That must be extremely frustrating." (285/59)

> "You did a great job with your daughter!!! How did u do it (mine are 8yr twins and a 15 month old)!!!" (380/64)

Meeting Community Information Needs

Information-sharing is another important manifestation of community in CMC. One of the primary benefits of membership in a listserve such as DEAF-L is that it provides access to a wide range of experience, opinion, and knowledge. Because the deaf community is relatively small and geographically dispersed, access to DEAF-L allows people to locate friends, colleagues, and community figures.

> "Laurene Gallimore was at the Indiana School for the Deaf and I heard she moved. Someone said she might be teaching at Western Oregon State College (WOSC). Can someone please help? Need to contact her." (483/50)

This access is especially useful for deaf people who have attended residential schools and are likely to be separated once school ends. Members of the DEAF-L community also turn to each other when they require practical information.

> "If anyone in this newsgroup can help, I would appreciate some information on closed caption television...What equipment, etc. do I need to purchase in order to adapt his television to receive the captions?...where do I obtain it? ..and what are the approximate costs, etc.? ...are all television programs closed captioned? Any other comments or suggestions very much appreciated." (442/119)

DEAF-L members also consult each other on health-related issues. People who may be hesitant to consult hearing professionals, or may be simply interested in exploring options, seek out those who have had similar experiences and so may be able to provide

helpful input. The following message, on a persistent health problem and the possible ramifications of a cochlear implant, is typical of the information sought in this medium.

> "I also get minor tinniticus as well once in awhile in the affected ear...perhaps a CI in the left ear would cure the problem, because all the fluid would drain away from the cochlea, killing all the hair cells in the process. Perhaps solving this frustrating problem. But my worry is, what if it doesn't. What if (and I haven't asked the doctor this yet)) I got one and it was turned on , and I got dizzy? Anyways, any comments on the matter is appreciated. Especially if one is a cure. :)". (155/54)

The messages posted in response indicate not only that other DEAF-L members are willing and able to provide relevant information and support, but also that they do so cognizant of the importance of seeking professional/medical assistance in these matters.

> "It looks like you've got middle-ear otitis.. I think... (it's been very LONG since my last otitis, at 10 yes [sic] of age) Go see an OWL, an ear doctor..it's better!" (170/11)

> "You and I have something in common. Ditto in my left ear. I used to suffer Meniere's Disease when I was a kid...It has to do with fluid in the inner ear. If a noise is so bad, the fluid would go off the balance and would then cause me dizzy spells, nausea, sick for several hours to two weeks...It is you who can prevent it. How? Avoid turning your head to the left side. Do not sleep on the left side..." (175/21)

Access to information is also a pressing need of parents of deaf children. It is not surprising then that 11% of the messages posted to DEAF-L are requests for information. These messages include requests for resources, such as:

> "Does anyone know where I can find videos that teach deaf children signing?...Thanks in advance for suggestions." (151/53)

or for information about the day-to-day effects of deafness with which hearing parents may not be familiar.

> "Are deaf children more prone to nightmares? Someone told me that and since our son has them regularly I thought I would ask." (345/97)

On DEAF-L, deaf people are able to inform and advise hearing parents of deaf children without hindrance from differing language modalities.

> "I don't know what is the situation of other deaf children, but at my childhood I did have nightmares." (413/42)

Such postings also allow parents of deaf children to share information in a way that may empower them, that is, allow them to feel that they are providers and not just seekers of knowledge.

> "Random House has a good series called Sign Me a Story..with Linda Bove. They are great because they are stories like Littel Red Riding Hood, Goldylocks etc. my son is 10 and he loves to watch them over, and over and over!!" (203/67)

DEAF-L also serves as a forum for deaf parents of hearing children to seek and receive information and advice.

> "My daughter is getting married next summer... I would really like to miss as little of the ceremony as possible. Not knowing much about wedding etiquette, does anyone know: do I arrange for an interpreter being as I am the only deaf person I know who is going? Has anyone had a similar experience or know of a similar situation?" (474/130)

> "By all means. Why should you be left out of this wonderful day in your daughter's life. Hire an interpreter for the entire function. Contact your local Interpreter Referral Service for information. Good luck and Enjoy the day. Oh by the way what state are you in maybe I can help." (555/26)

It also allows parents and professionals to communicate the difficulties faced by hearing parents of deaf children to deaf people, increasing the potential for these two groups to move out of isolation on particularly contentious issues such as cochlear implants, and in this way to create a more open and supportive forum for discussion.

> "And therein lies the most sad part of the whole issue -- the arguments back and forth because well meaning people on BOTH sides feel as if they are RIGHT and HAVE THE RIGHT to tell other people what's best for their child." (392/18)

Disagreement in Diversity - Discussing versus Flaming

Despite the medium's ability to facilitate information sharing, the DEAF-L data reveals that difference, especially diversity of opinion on contentious issues in deafness, is also expressed in more negative ways, most specifically in the use of insulting and invective language known as *flaming*. Flaming is a common occurrence on many listserves, though it is perhaps less prevalent in DEAF-L than one might expect considering the complexity of the issues discussed and the emotional attachment many participants have to their perspectives and opinions. Investigation of the data revealed a number of different kinds of flaming. Flames are used to debunk people's arguments, for example:

> "This is a very old, very lame argument that is insulting to the reasoning ability of individuals all over the world." (159/03)

They may also be used for more personal attacks:

> "As tiresome as your little exercise in online masturbation was, I think it did serve two purposes: (1) it showed in technicolor what a hateful person you are, and (2) it showed how little you know of community.". (643/133)

Sometime flames are leveled at the deaf community as a whole.

> "The beliefs that make your lives tolerable are a lie. The lie that ASL is as capable as English, the lie that the Deaf Community is as diverse and interesting as the hearing world, the lie that the Deaf are as capable as hearing people, the lie that the choice of being Deaf is an equal choice rather than being a retreat to a place that caters to your communication deficiencies with special support." (588/40)

Flaming, however, is also used to criticize unwillingness to forego hard-line attitudes in favor of an openness to new perspectives and opinions.

> "This kind of isolationist crap you're spewing is very much the kind of thing I was talking about when I first started this thread. Your 'love it or leave it' mentality is what I've had it up to here with -- not Deaf Culture". (78/03)

Flaming appears to be especially prevalent in subject streams which most easily lend themselves to some form of subjective labeling typified by the use of *isms*. As a result, language discussions frequently degenerate into diatribes in favor of or opposing oralism (also called audism).

> "Asians had a right to speak out against the nationalism of the 40's, and I have every right to speak out against the attitudes of Deaf people like you. Just like I fight racism, and sexism, your audism offends the hell out of me, and your 'honesty' doesn't excuse it." (78/03)

Despite is unpleasantness, the data reveals that some participants see benefits to flaming. One participant acknowledges that the seriousness of the issues discussed inevitably leads to conflict.

> "The reason the 'same old tired arguments' pop up every now and then is because it just happens. Its important to the deaf and hearing. Of course, arguments don't change other people's minds, but what else can we do besides arguing, kill each other? :)" (18/16)

Another notes that learning to defend one's beliefs in the face of opposition is an important benefit of participating in such discussions.

> " I have been on manual side when it comes to oral/manual debates over the year on DEAF-L, I come to learn to challenge and to stay open-minded. Certainly I have been punched in the stomach, face or kicked in the ass...Yet, I developed my coping skill and learned to deal with people who are different." (691/157)

Other members also argue that agent provocateurs are a source of much of the thought-provoking commentary found in DEAF-L and add zest to listserve discussions.

"Number one, even if engaged in a heavy flame war, they *back up* what they say with some noticeably deep arguments. They make you think. I can appreciate the *effort* they put into their postings, regardless of whether I agree with them or not. They make ME think. Some of the best concepts I have ever come up with have been a direct result of agreeing (or disagreeing) with something George or Bill said in here." (695/06)

It seems clear, therefore, that while DEAF-L members have different opinions about and tolerances for flaming, it does not appear to prohibit the on-going discussion of issues in which many members of the community are compelled to engage with passion.

Real Roles in A Virtual World: Virtuosos, Lurkers, Moderators and Weavers

While the presence of some level of flaming may not hinder DEAF-L's capacity to engender discussion among its members, there remains the larger question of what or who actually encourages discussion, that is, who is responsible for making the listserve a vibrant community of communicators. The data reveals that while there were approximately 550 subscribing members of DEAF-L, only 177 (32%) posted one or more messages during the twenty-day data collection period. Twenty members were responsible for providing over half (53%) of the messages collected. These frequent posters can be considered virtuoso posters, as they are the most prolific members of the listserve and serve to keep the communication flowing.

The remaining 373 members (68%) posted no messages at all during the data collection period. Despite their lack of posting, these lurkers, as Perkins and Newman (1995) point out, have an integral role in listserve life. As one poster notes, lurking can be motivated by a desire to learn about deafness and deaf community from those who are more informed.

"I may not have as direct an involvement in the issues as most of you (and most of the time I feel like an intruder, to tell you the truth) but I just wanted to say how much I value your words (all of them!). Thanks" (369/14)

"When I read deaf-l I sort of feel like I'm back in university sitting in a class where there are four or five really energetic students who speak out more than the rest. I would sit, mesmerized, hanging on to every word in

> awe. They would debate vehemently with each other and I would walk out of each class with a much clearer understanding of the issues and a much clearer understanding of my classmates and how they think and interact. And every day I would sit, near the back, too shy to speak out myself but ever thankful that there were those who could". (800/14)

It may also result from a lack of familiarity or confidence with CMC technology.

> "I am a lurker with limited Internet competency." (487/132)

Other lurkers prefer to post messages only when they have a particularly pressing question or concern, for example:

> "Hello all, I'm a sometimes lurker on this newsgroup. I've been wondering what happened to Matthew Collins since he got his cochlear implant. I haven't seen him on this newsgroup for at least a few weeks... Back to the murky waters of lurking...: (414/112)

They may also choose to post only when they can provide relevant information:

> "I, who am not deaf or Deaf, work at a TV station and pay a lot of attention to the closed-captioning (its kind of my job as the [title deleted]). I would complain to the individual TV station first. It is probably (90% chance) their error, if they record the show through a frame synchonizer (TV tech talk) it can mess up the caption signal... Just a lurker (until now)." (426/115)

This tendency towards infrequent but important participation is noted by one DEAF-L member in the following way:

> "Deaf-L is made up of all of us - those who dominate and express your ideas regularly and the quiet majority who sit there and read all of this - then there are a few of us who are very opinionated and wait until it is necessary to hit everyone on the head to knock common sense into them...in our own way we contribute to the List for better or for worse". (817/175)

Once cannot assume, therefore, that non- or infrequent posting denotes a lack of interest in the listserve contents or a lack of connection to this deaf cyber community.

The only official position in terms of a specific role in the listserve's day-to-day functioning, is that of the Moderator. Dr. Roy Miller is the originator and owner of DEAF-L; that is, he began it, manages it, sets its rules and policies, and has the power to discontinue it. Unlike some Moderators (particularly on academic lists) who actively manage listserve contents, Miller tends to remain in the background until a list controversy requires his intervention. He does, however, set the context in which all DEAF-L communication takes places by notifying each member of the guidelines of use and enforcing these guidelines (through suspensions of posting privileges) when infractions occur. As Miller states:

> "If I am convinced that an individual is exceeding the bounds of reasonableness and propriety in their public discourse on DEAF-L, then I won't hesitate to deny that person 'write' access to the list. " (602/144)

Miller's view of the Moderator's authority, however, is not one to which all members of the DEAF-L community subscribe, and like many other communities DEAF-L occasionally finds itself embroiled in debates concerning censorship. Some members agree that, as the owner of DEAF-L, Miller has not only a right, but a duty to ensure that civility is maintained.

> "There are no 'rules' on the internet. There are conventions and a certain amount of nettiquette. This is, as Roy points out, his sand box and if he doesn't want to let some neighborhood kid play in it, well, that's his business and if we don't like it we can jolly well go and find some other sand box in which to play." (648/08)

Other members, however, argue that the guidelines are arbitrary.

> "Deaf-L is like a large plot of land with the people who read and post here being the inhabitants. There were no rules or requirements when Roy offered the land for their use. Every now and then, he comes back and victimises someone to show that he's tough and he means what he says when he imposed the rules. He doesn't suspend everyone who violates

> the rules - just the ones that are convenient or that he doesn't like in particular." (638/40)

Perhaps the most telling argument, in terms of what it reveals about the listserve and how members feel about it, is the one based on the belief that DEAF-L no longer belongs to the Moderator but to the DEAF-L community.

> "It's a public meeting place, and while you own it, and the structure of the net says you have *power* over it, again it would be nice to see you respecting the *principles* of a democratic society to the extent that you allow people to excersise the right to free speech in this forum-- not because you have to, but because you respect the principle." (617/03)

This argument reveals the extent to which DEAF-L's members are passionately engaged in, feel ownership of, and long for the listserve to conform to their own ideals, be they ideals of decorous discussion or uninhibited speech. To the Moderator however, remains the usually thankless task of ensuring a balance between liberty and license. And as one member notes, this will always be a more difficult task because it is taking place in a purely textual and very public medium.

> "It is always hard to avoid misunderstandings in written discussions, despite the use of emoticons to register emotional tone. What is missing are the body-language cues accompanying face-to-face discussion which help us to interpret more truly the tenor of the words exchanged. I don't agree that a public forum such as DEAF-L is an 'open-go' for the use of gratuitous vulgarities. We might be sensitive to the fact that some other people are distressed by these, and so why not exercise some care in what we say as a courtesy to others?" (821/52)

While DEAF-L's Moderator plays an essential role in maintaining the decorum of the communications, he does not actually facilitate discussion. An examination of the data, however, reveals that although not formally designated as such, DEAF-L does have a community member who gives the group a sense of history, satisfies the need for meta-cognition, and provides a unifying overview which gives the group a sense of direction and accomplishment. As Feenberg (1989) and Kimball (1995) suggest, this person serves as a *Weaver* of the threads of discourse.

In all of his postings, DEAF-L Member 06 displays an ability to identify key issues and create possibilities for dialogue where only disagreement and dissension had seemed likely. By providing a sense of history, especially for contentious issues, DEAF-L's Weaver appears to limit the potential for discussions to deteriorate into a series of repetitive flame wars.

> "Notice how whenever we bring up an issue in here, people immediately split into two camps, two extremes? Theres rarely a cordial exchange of views where people say 'oh, so thats what worked for you'. Instead, it tends to be Flame City where everyone adamantly insists that things should be this one way, period." (350/06)

He also uses personal experience to validate opposing sides of an argument and thus creates a sense of common ground, allowing discussions to proceed in a more reasonable, if not positive, fashion.

> "Deaf Culture has given me many, many things which the hearing world never could and never will. Nonetheless, every group has its share of the good, the bad, and the ugly...I (and a number of close friends of mine) agree that if we dont wake up to all of the petty cycles of abuse, paternalism and favoritism which exists in many aspects of Deaf Culture, then Deaf Culture is in trouble. Only by opening our eyes to our shortcomings can we improve, so I do not object to Lincoln's comments." (06/07)

As Kimball (1995) notes, DEAF-L's Weaver also provides useful suggestions as to where discussions might go next.

> "I was wondering if anyone can categorize hearing people who are involved in the deaf community. We argue and argue about different factions of deaf people (oralists, manualists, HOH, Deaf, Deaf militants, CI-implanted, etc etc), yet we hardly talk about hearing people who are involved...Thought it would be a refreshing change from the usual venue of argue of what d/Deaf people are like/should be like. :) Just thinking out loud...." (34/06)

posters, especially inexperienced ones, may aspire. In the absence of a more interventionist moderator, the Weaver may be the glue that holds the DEAF-L listserve together over time.

Valuing Each Other and the Medium

One of the strongest indicators of the community building potential of CMC lies in the sense of belonging expressed by many participants. Despite indications of enmity present in some flames, members of the DEAF-L community demonstrate a strong attachment to each other and to the list. This sense of community is often expressed directly, for example:

> "We're a pretty close bunch of people (a big group that is :))." (375/35)

When members leave the group, especially as a result of in-fighting, they are missed, and the sadness of the response is palpable:

> "I felt that we were a bit of an extended family...some of those who left had said as much. Yet they just walk out. I guess they were just here for the entertainment factor..Oh well...life goes on..." (774/133)

and when former group members return, they are welcomed.

> "It is good to hear from you once again! I certainly hope this finds you in the best of health." (599/21)

Individual members of the group also express strong attachments to each other.

> "Youre one of my favorite people on this list, I love reading your posts, and I can't wait until I finally meet you someday when I am visiting [name deleted]." (343/06)

Some argue that even its most obnoxious member provides a diversity of ideas and opinions and should therefore be valued for these:

> "The man you all love to hate :-) And what would this list be without him? zzzzzzzzzzzzzzzz.... " (243/15)

or simply for being who he is:

> "..when I think about it, much against what I would normally call my 'better judgment', I find myself thinking that I like him, too. How can someone so obnoxious be so likable?" (748/20)

Such comments leave one with the impression that, despite its contentiousness, this is group of people bonded together by affection and cognizant of the contribution each makes to the whole. The data also reveals a considerable appreciation for the medium itself. Some members indicate that DEAF-L provides a uniquely interactive virtual space in which they can participate and learn about deaf people and deaf community. This opinion is expressed in a poignant note from the parent of a deaf child.

> "I just wanted to take this opportunity to tell all of you frequent posters on Deaf-L that you have taken a very naive individual (me) and provided a forum for enlightenment that could not be found in any book. I still have a lot to learn about deafness and Deaf Culture and thanks to this list and Carrie's friends, I will." (369/14)

Access to a large number of people with a variety of opinions and information sources is also seen as a benefit of membership in DEAF-L.

> "So, if you've got questions or wonder about something -- ask or wonder out loud -- you'd find a lot of responses in a hurry -- this list is pretty darn active. :)" (375/35)

> "one of the reasons I liked engaging in this list was because I could reach a sizable chunk of the D(d)eaf Internet community via this list in one single place. This can be a very valuable asset, in my opinion." (783/121)

For some, it is a medium in which to locate people with common concerns arising from shared experiences.

> "Of everyone I have seen in here, you have a personal history that is closest to my own." (725/40)

For others, DEAF-L is a place to learn new ways of looking at the world and its people.

> "I have learned a lot from the list, more than I can ever know. It changed and shaped my opinions and attitudes to the point where some of the new attitudes and opinions are at the other end of what it used to be." (738/16)

It is also a much-appreciated tool for overcoming the sense of isolation believed to be very much a part of the experience of some deaf people.

> "What's so hard is that either way, I'm not really part of the culture. I am not part of the hearing world (and won't even be if I do get a CI), but also, the born deaf community would not consider me culturally 'D'deaf either. Please let me hear from you, I could use your views!! That's why i specifically got a computer to get on the internet, I need your opinions!!!!! Thanks for listening." (339/64)

As these quotes indicate, the reasons for joining and remaining a part of this on-line deaf community may be as diverse as the participants themselves, but what is clear from the data is that DEAF-L is a place where two powerful cultures, deaf culture and cyber culture come together, enabling and enhancing each other and providing a forum for the on-going dance of communication.

CONCLUSIONS

When presented in combination in the context of this single case study, the data demonstrates that members of the DEAF-L listserve enjoy a profound attachment to their virtual community and to each other. By providing a medium in which deaf people can locate and communicate with each other, DEAF-L helps expand deaf peoples' communications beyond the limitations once imposed by geography and communication devices such as the telephone, thus supporting Cerf's (1974) contention that CMC has the potential to facilitate deaf community in profound new ways.

Many of the issues of deafness highlighted by previous researchers are part of the fabric of DEAF-L discussion. The search for a non-pathological models of deafness, as explored by Carver (1990) and Musselman (1994), is reflected in the number of messages dealing with definitions of deafness, deaf culture, deaf humor, and deaf entertainment. The number of messages pertaining to oralism and sign language provides additional evidence for research by Padden and Humphries (1988), Carver and

Doe (1989), Sachs (1990), Lane (1992), and Bienvenu (1994) which point to the importance of questions of language in defining deaf culture and illustrating ways in which deaf people experience oppression as a cultural and language minority.

While issues of hearing status and choice of language modality are an important part of DEAF-L discussion, the purely textual nature of the medium actually diminishes barriers between participants and creates room for more inclusive markers of belonging. In the absence these differences in hearing status and language modality, community members are judged on the basis of the soundness of their ideas. Belonging in DEAF-L is therefore predicated on an engagement with the *issues* of deafness, and in this way its members are profoundly immersed in, and are therefore part of the deaf community of DEAF-L simply because they *choose* to participate in it.

Because DEAF-L provides access to a large number of geographically dispersed people it can be used to seek and distribute information of particular concern to deaf people, those providing services to the deaf community, or simply individuals who want to learn more about deaf culture from deaf people themselves. Because its members are not a homogeneous group in terms of their opinions on deaf issues, it also serves as a rich resource base. The DEAF-L community is made up of people who are deaf and hearing, proponents of oral education, manual education and Bi-Bi, supporters of cochlear implants, and fierce objectors to medical or technological intervention. They are also people who can provide considerable information concerning resources available to deaf people and their families in many parts of North America and, in fact, the world. Although many of the contentious issues in deafness, for example the conflict between oral and manual communication, generate considerable flaming activity, members do not appear to view these negative exchanges as prohibiting discussion.

The DEAF-L data validates much of the previous CMC research in that it supports the observation that the success of a listserve is predicated on the existence of a number of roles, each of which contributes to the functioning of the on-line community. On DEAF-L, these roles include: the virtuosos, the lurkers, the Moderator, and the Weaver. More adept members of the community play an active role in facilitating discussion and creating community by providing a sense of history and accomplishment to the group, and by encouraging other members, by word and by example, to engage thoughtfully, and with civility, respectful of individual differences. These results support research by

Perkins and Newman (1995) which highlights the contribution that frequent and successful posters, or virtuosos, make to the on-line community.

DEAF-L is a community where individuals from many different walks of life interact with some hope of forging, if not consensus, at least a greater understanding. It is a place where deaf people and hearing people can communicate without the barrier of differing language modalities and in which both can find individuals who share interests, ideas, and life experiences. In many ways then, the virtual community of DEAF-L is like any other real world community. People belong because they choose to participate, and they remain because doing so meets their social, intellectual, and emotional needs. To its members, DEAF-L is more than words emanating from distant machines scrolling across the screen, it is the text of relationships forged in a new realm, it is people who laugh with each other, and fight with each other, and value the contributions each makes to each and to the whole. It is a place in which oral deaf, and manual deaf, and hearing people working in the field, where deaf people, and parents of deaf children, can meet and attempt to forge consensus on difficult and emotional issues. It is a world in which there are only words, but these words are alive and full of meaning. It is a special and important place because the people in it make it that way.

Endnote:

All of the names given in this paper are pseudonyms with the exception of well-known public figures.

REFERENCES

Perkins, Jan and Newman, Kenneth. (1995). *Lurkers and Virtuosos in E-Discourse*, Sixth World Conference on Computers in Education. Birmingham, UK, July 23-28.

Postman, Neil. (1988). *Conscientious Objections*. New York: Vintage Books.

Stokoe, W.C. (1993). The Broadening and Sharpening of Psychological Perspectives on Deafness. In Marschark and Clark (Eds.), *Psychological Perspectives on Deafness*. Hillsdale, NJ: Hove and London.

World Health Organization. (1980). *International Classification of Impairments, Disabilities and Handicaps: A Manual of Classification Relating to the Consequences of Disease*. Geneva: World Health Organization.

Strauss, R. (1966). Social Change and Rehabilitation Concepts. In Sussman (Ed.), *Sociology and Rehabilitation*. Washington, D.C.: American Sociological Association, 1-34.

Carver, Roger. (1990). *Cochlear Implants in Prelingual Deaf Children: A Deaf Perspective.* Cochlear Implant Forum. Toronto, ON, March 31.

Musselman, C. (1994). Teaching Effective Communication to Parents of Deaf Children: The Role of Visual Information. *IV Simposiode Logopedia.* Madrid, Spain. Feb. 14-16.

Solomon, Andrew. (1994). Defiantly Deaf. *New York Times Magazine*. August 28.

Padden, C. and Humphries, T. (1988). *Deaf in America: Voices from a Culture.* Cambridge, MA: Harvard University Press.

Kisor, H. (1990) *What's That Pig Outdoors.* New York, NY: Hill and Wong.

Cerf, Vinton. (1978). The Electronic Mailbox: A New Communication Tool for the Hearing Impaired. *American Annals of the Deaf*, October, 768-772.

Storm, Robert D. (1983). A Model for Implementation of Microcomputer Use Into a Program for the Hearing Impaired. *American Annals of the Deaf*, Vol. 128, 535-552.

Bruce, Bertram C. and Peyton, Joy Kreeft. (1994). *Literacy Development in Network-Based Classrooms.* Technical Report No. 597. College of Education, University of Illinois at Urbana-Champagne. Center for the Study of Reading, Urbana, IL.

Stepp, Robert E. Jr. (1992). A Technological Metamorphosis in the Education of Deaf Students. *American Annals of the Deaf*, Vol. 139, Special Issue, 14-17.

Male, Mary. (1988). *Special Magic: Computers, Classroom Strategies and Exceptional Students.* Mountainview, CA: Mayfield.

Krogh, Karen. (1993). *The Social Impact of Computer-mediated Communcations: A Case Study of a Woman with a Disability*. Masters Thesis, Graduate Department of Education. University of Toronto. Toronto, ON.

Tighe, Randolph Jeffrey. (1994). *The Impact of Using Computer Technology on People with Disabilities*. Doctoral Thesis, Graduate Department of Education. University of Toronto. Toronto, ON.

Paxton, P. (1994). Joining in on Discussions: Using Listserves and Mailing Lists. In P. Baczewski et al. (Eds.), *The Internet Unleashed*. Indianapolis, IN: Sams Publishing, 319-341.

Murray, Peter John. (1995). *Nursing the Internet: A Case Study of Nurses' Use of Computer-Mediated Communications*. Masters Dissertation. Faculty Of Nursing. McMaster University. Hamilton, ON.

Mason, Robin. (1988). Computer-conferencing: A Contribution to Self-Directed Learning. *British Journal of Educational Technology*, Vol. 19 (1), 28-41.

Yin, R. K. (1989). *Case Study: Research Design and Methods*. Newbury Park: Sage Publications.

Feenberg, A. (1989). The Written Word: On Theory and Practice of Computer Conferencing. In R. Mason and A. Kaye (Eds.), *Mindweave. Communication, Computers and Distance Education*, 22-39, Oxford, UK: Pergammon Press.

Kimball, Lisa. (1995). Ten Ways to Make On-Line Groups Work. *Educational Leadership*, Oct., 54-56.

Harrasim, L. (1990). *On-Line Education: Perspectives on a New Environment*. New York, NY: Praeger.

Perkins, Jan and Newman, Kenneth. (1996). Two Archetypes in E-discourse: Lurkers and Virtuosos. *International Journal of Educational Telecommunications*. In Press.

Carver, R. J. and Doe, T. M. (1989). Rehabilitation or Oppression? Options for the Humanization of the Deaf. *Canadian Journal of the Deaf*, 3 (3), 87-100.

Sacks, O. (1990). *Seeing Voices*. New York, NY: Harper Perennial.

Lane, H. (1992). *The Mask of Benevolence: Disabling the Deaf Community*. New York, NY: Vintage.

Bienvenu, M.J. (1994). *Resistance to Deaf Culture: Ten Reasons Why*. The Bi-cultural Center, January, No. 65, 1-3.